

- I. Project Title: **Removal of Nonnative Fishes from Sloped Gravel Pit Ponds and Evaluating the Use of Sloped Gravel Pit Ponds by Endangered and Natives in the Upper Colorado River near Grand Junction, Colorado**

- II. Principal Investigator(s): Frank K. Pfeifer, Project Leader
: Bob Burdick, Fishery Biologist
organization: Colorado River Fishery Project
address: 764 Horizon Drive, Building B
Grand Junction, CO 81506-3946
phone: (970) 245-9319, FAX (970) 245-6933
E-mail: Frank_Pfeifer @ FWS.GOV
Bob_Burdick @ FWS.GOV

III. Project Summary:

Project goals are to 1) evaluate gravel pits traditionally reclaimed as depressions but reconfigured, backfilled, and sloped to drain and behave as ephemeral, floodplain habitats for adult Colorado pikeminnow and other native fishes, and 2) remove and dispose of nonnative fishes from these same modified ponds.

This is the second year of a three-year field project. Field work was conducted during runoff and post-runoff river stages over a 7-week period from 26 May to 9 July 1999 in Gardner Pond and over a 4-week period from 2 June to 24 June 1999 at the Jarvis Restoration Site using trap nets. Trammel nets and electrofishing were not used in 1999 at either site because runoff was lower than 1998 and water depth in both ponds was too shallow to practically and effectively use these two gear types. Five-hundred eighty-eight native and 6,960 nonnative fish were collected from both Gardner and Jarvis ponds during runoff and post-runoff river stages. Green sunfish, black bullhead, white sucker, and red shiner were the predominant nonnative fishes collected. Seventeen sub-adult and adult Colorado pikeminnow were captured--all from Gardner Pond. One pikeminnow was captured three different times in Gardner Pond; four different pikeminnow captured in 1998 in Gardner Pond were also recaptured in Gardner Pond in 1999. No Colorado pikeminnow or other endangered fishes were captured in Jarvis Pond. Results to date on endangered fish use at the Jarvis Restoration Site are inconclusive.

- IV. Study Schedule:
a. initial year: 1998
b. final year: 2001
- V. Relationship to RIPRAP: Colorado River Action Plan: Colorado River;
II.A. Restore and manage flooded bottomland habitat: monitor and evaluate success. III.A. Reduce negative impacts of nonnative fishes and sportfish to endangered fishes: control nonnative fishes.

VI. Accomplishment of FY 99 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

A. FY-99 Tasks and Deliverables:

- Task 1. Capture native and nonnative fishes using trap and fyke nets, trammel nets, electrofishing, and seines.
Task completed.
- Task 2. Remove all nonnative fishes captured by mechanical means from graded gravel-pit ponds adjacent to the Upper Colorado River. Enumerate all native fishes captured by species and age-group captured with various gear types.
Task completed.
- Task 3. Prepare RIP annual progress report.
Task completed.
- Task 4. Analyze field data; prepare final report.
Field data computerized and analyzed for FY99.

B. Findings

This is the second year of a three-year project to collect fish from off-channel, gravel-pit habitats. Two ponds were initially selected for this study, Jarvis Pond (river mile 170.9) near the confluence with the Gunnison River, and Gardner Pond (river mile 174.4). Gardner Pond is a former gravel-pit pond that was formerly reclaimed as a depression. Next, it was reconnected to the river by a channel. During the winter of 1997/1998, it was reconfigured and reshaped to slope toward the river to fill during runoff and drain during post-runoff. No sampling was conducted in 1998 at the Jarvis Restoration Site because contract negotiations with the City of Grand Junction and the Recovery Program were delayed, and on-site work to connect Jarvis Pond to the river and reconfigure it to slope toward the river had not begun when this study commenced in May 1998. Therefore, Pickup Pond (river mile 175.0) was selected as a replacement for the Jarvis site in 1998.

In 1999, field work was conducted during runoff and post-runoff river stage during a 7-week period from 26 May to 9 July in Gardner Pond and during a 4-week period from 2 June to 24 June in Jarvis Pond. Pickup Pond, sampled the previous year, was not sampled in 1999. Trap nets were the only gear type used to sample and collect fish in 1999 from both Gardner and Jarvis ponds. Eight trap nets were set in Gardner Pond and two trap nets in the connection between the river and Jarvis Pond. The nets were fished continuously during the weekdays, but were not fished during the weekends. Trap nets fished a total of 4,333.8 hours in Gardner Pond; 482.5 hours in Jarvis Pond. As a result of a low runoff in 1999, trammel nets and electrofishing were not used because water depth was too shallow in the ponds for these gear types to effectively fish.

A total number of 5,943 juvenile and adult nonnative fish were collected from Gardner Pond; 1,017 nonnative fish were collected from Jarvis Pond (Table 1). This comprised twelve different nonnative fishes, five native fishes, and two sucker hybrids (Appendix Table 2). Four-hundred thirteen native fish were

Table 1. Number of juvenile (JUV) and adult (ADU) native and nonnative fishes collected with trap nets from two gravel-pit ponds, Gardner Pond (river mile 174.4) and Jarvis Pond (river mile 170.8), in the Upper Colorado River during runoff late-May to early-July 1999. See Appendix; Table 2 for the number of native and nonnative fishes collected by species.

| Gear Type | No. of Hours Fished | Number of Fish | | | | |
|-----------------------------|---------------------|---------------------|-----|-----------------|-----------|-------|
| | | NATIVE ^a | | | NONNATIVE | |
| | | JUV | ADU | CP ^b | JUV | ADU |
| Gardner Pond | | | | | | |
| Trap Net | 4,333.8 | 280 | 116 | 17 | 4,349 | 1,594 |
| Trammel Net ^c | --- | -- | -- | - | -- | -- |
| Electrofishing ^c | --- | -- | -- | - | -- | -- |
| Jarvis Pond | | | | | | |
| Trap Net | 482.5 | 174 | 1 | 0 | 873 | 144 |
| Trammel Net ^c | --- | -- | -- | - | -- | -- |
| Electrofishing ^c | --- | -- | -- | - | -- | -- |
| ALL TOTALS | -- | 454 | 117 | 17 | 5,222 | 1,738 |

^a Includes sub-adult and adult Colorado pikeminnow

^b CP = Colorado pikeminnow

^c Not sampled because pond water depth was too shallow to use these gear types because of a low runoff.

collected from Gardner Pond; 175 native fish were collected from Jarvis Pond. Two sub-adult and 15 adult Colorado pikeminnow (mean TL=628; range 434-872 mm) were captured. All pikeminnow were captured in Gardner Pond. No endangered fish were captured in Jarvis Pond in 1999. All pikeminnow had been previously captured. Five pikeminnow were caught more than once, four pikeminnow were caught twice, and one pikeminnow was caught three different times. Four different pikeminnow captured in 1998 in Gardner Pond were also recaptured in Gardner Pond in 1999.

Green sunfish was the predominant nonnative species collected in Gardner Pond in 1999 as they comprised 65% (3,884) of all fish collected. The green sunfish population in Gardner Pond exploded in 1999. Catches of green sunfish in 1999 in Gardner Pond were significantly greater (60 times) from 1998 when only 64 (9% of the total fish collected) were collected from this pond. Green sunfish comprised 22% of all fish collected in Jarvis Pond in 1999. White sucker comprised 40% of the fish collected in Jarvis but only 4% (186) of the fish in Gardner Pond. Captures of black bullhead (795; 13%) and red shiner (690; 12%) in Gardner Pond were also significant in 1999.

All native fish were returned to the pond; all nonnative fish were removed.

VII. Recommendations (note underscored items):

- A. Commence sampling both Gardner and Jarvis ponds as soon as runoff waters inundate these two ponds with trap nets, trammel nets, and boat electrofishing. Continue intensive netting and electrofishing during runoff and post-runoff river stage in these two ponds that have been modified to fill and drain during runoff and post-runoff river stages, respectively, to document the seasonal use by native and nonnative fishes. Remove all nonnative fishes.
- B. In 1999, the number of green sunfish in Gardner Pond at 29-5/8 Road increased 60 times from 1998 catches. This indicates that the green sunfish population at this site has increased significantly. Ninety-five percent of the green sunfish catches were from one trap net in the northeast portion of this pond. Approximately 2 acres of the most eastern portion of this pond does not drain following runoff because it is a depression.

APPENDIX

Table 2. Numbers of juvenile (JUV) and adult (ADU) native and nonnative fishes collected with trap nets from two gravel-pit ponds, Gardner Pond (river mile 174.4) and Jarvis Pond (river mile 170.8), in the Upper Colorado River during runoff late-May to early-July 1999.

| | Jarvis Pond | | Gardner Pond | |
|-------------------------|-------------|-----|--------------|-------|
| | JUV | ADU | JUV | ADU |
| Native Fishes | | | | |
| flannelmouth sucker | 48 | 0 | 152 | 38 |
| bluehead sucker | 22 | 0 | 61 | 32 |
| roundtail chub | 99 | 1 | 67 | 46 |
| speckled dace | 5 | 0 | 0 | 0 |
| Colorado pikeminnow | 0 | 0 | 2 | 15 |
| subtotal | 174 | 1 | 282 | 131 |
| Nonnative Fishes | | | | |
| common carp | 19 | 16 | 16 | 118 |
| white sucker | 403 | 4 | 186 | 39 |
| channel catfish | 1 | 3 | 71 | 43 |
| black bullhead | 63 | 4 | 76 | 719 |
| black crappie | 0 | 0 | 2 | 6 |
| largemouth bass | 5 | 0 | 3 | 2 |
| smallmouth bass | 0 | 0 | 3 | 1 |
| green sunfish | 196 | 32 | 3,813 | 71 |
| bluegill | 0 | 0 | 1 | 0 |
| fathead minnow | 35 | 5 | 15 | 31 |
| sand shiner | 79 | 10 | 1 | 28 |
| red shiner | 67 | 70 | 158 | 532 |
| white sucker X | | | | |
| bluehead sucker | 1 | 0 | 2 | 2 |
| white sucker X | | | | |
| flannelmouth sucker | 4 | 0 | 2 | 2 |
| subtotal | 873 | 144 | 4,349 | 1,594 |
| ALL TOTALS | 1,047 | 145 | 4,631 | 1,725 |